

PATENT SPECIFICATION

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NO DRAWINGS.

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COMPLETE SPECIFICATION.

Hair Bleaching Composition.

We, RAYETTE-FABERGE INCORPORATED formerly Rayette Incorporated, a corporation organized and existing under the laws of the State of Minnesota, United States of America, located at 261 East 5th Street, St Paul 1, State of Minnesota, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to the bleaching of human hair and particularly to a bleaching composition especially adapted for "touch up" purposes in bleaching new hair growth of a fraction of an inch close to the scalp. To be successful, such localized bleaching must involve a minimum of overlapping of previously bleached hair, which would over-bleach and cause hair damage, and it should minimize scalp irritation from ammonia conventionally used with peroxide to effect the bleach. To be effective, the composition must remain in place at the base of the hair for the time needed for the bleach, retaining, while in place, the optimum alkalinity and moisture content needed to continue the bleaching action. To give such compositions the thickness or body needed for immobility in localized application, it has been common to add adsorbent "white henna" materials such as mixtures of magnesium carbonate and magnesium oxide or magnesium trisilicate. Such adsorbents and bleach compositions using them have a number of limitations which the present invention seeks to obviate.

The invention consists in a dry powder for admixture with hydrogen peroxide and a liquid ammonium soap to form a hair

bleach of gelatinous consistency comprising a persulfate salt of a cation selected from alkali metals and ammonium, and an anhydrous alkali metal silicate, the silicate and persulfate salts being present in a weight ratio range of 1:4 to 1:7 and forming, upon wetting with both of said liquids, a gel in the pH range of from 9.3 to not more than 10.

When the dry powder of the invention is mixed with hydrogen peroxide and a liquid ammonium soap and the mixture gelled to form a bleaching composition we have found that it possesses unexpected properties far superior to other compositions for the purpose, including those employing adsorbents and the same per-acid salts. The composition maintains a stable alkalinity at the optimum pH value; it retains its moisture content over long bleach processing times and it can readily be shampooed out of the hair with no dry powdery residue. The composition affords a wide range of selectivity of bleaching strengths by enabling the operator to mix the hydrogen peroxide with a unit quantity of liquid ammonium soap and selected different quantities of dry powder mix comprising the silicate and the per-acid salt, to form a range of bleaching compositions of different graded strengths but in which the pH value remains within a desired narrow range.

A hair bleach produced from the dry powder of the invention preferably comprises:

hydrogen peroxide
aqueous ammonium hydroxide
fatty acid

	solvents (water which may contain alcohol) alkali metal or ammonium persulphate anhydrous water-dispersible alkali metal silicate	acts with the per-salts and soaps to buffer the bleach to the desired range of alkalinity, despite varying proportions of solids to liquids, as we shall refer to, and which alkalinity persists stably during the bleach. We prefer sodium metasilicate as it is readily dispersible as a finely-divided powder, and is highly alkaline. The sodium metasilicate aids in imparting the required alkalinity with a lower pH value than if ammonium hydroxide alone were used.	65
5	The composition may also contain wetting agents, dyes and perfumes, usually employed in hair treating compositions.		70
10	The fatty acid and ammonium hydroxide form an ammonium soap which is liquid at room temperature with an alkaline pH. Oleic acid is preferred, but others, including myristic, palmitic, and lauric, may also be used, as may stearic acid, although a stearic soap generally requires additional solvent to lower the viscosity. The soap contributes alkalinity, aids in achieving the desired consistency of the gel, and functions as a shampoo in the removal of the bleach. We have found an alkaline soap liquid having a pH of 9.3—9.6 to be satisfactory for admixture with the solids mixture. Further, a stoichiometric excess of ammonium hydroxide to fatty acid is used. A mole ratio of 1.25—1.6 moles of hydroxide per mole of fatty acid is the preferred range.		75
15	Ammonium or potassium persulphate is preferably used, and superior results are achieved by a mixture of both. The composition should provide persulfate, ammonium and potassium ions in solution, for which purpose, of course, one salt need not be a persulfate but can be a water-soluble sulfate or a salt of another acid. We have obtained good results with a mixture of potassium persulfate and diammonium phosphate. In our preferred composition, we use approximately three parts by weight of potassium persulfate to one of ammonium persulfate. The salts aid in the bleaching		80
20	by their oxidizing action, thus reducing the quantity of hydrogen peroxide required; they act with the silicate and the soap not only to buffer the bleach to an alkalinity within the desired pH range (which persists while the bleach acts on the hair despite volatility of other alkaline components) but also to achieve a gel of desired consistency which lasts throughout the bleaching operation. The gel may have a broad range of viscosity.		85
25	The gel may have a broad range of viscosity. However, it must not be too low, otherwise it will flow throughout the hair. Neither must it be so thick as to interfere with its uniform distribution on the hair contiguous to the scalp. Desirably, the composition possesses the property of reduced viscosity when subjected to stress and a firming when the stress is removed. In this way the bleaching composition flows onto the hair during application and then sets to a more rigid form so as to prevent flow to other areas of the hair.		90
30	The anhydrous water-dispersible, alkali metal silicate forms, with the other components, a gel of desired consistency and		95
35		Although there are specific relative amounts in which these components are preferably employed for best results, a feature of the invention is that the liquid components, in certain proportions, separately packaged, may be admixed for use in a wide range of ratios of total packaged liquids to total packaged solids to afford a range of bleaching actions while providing the desired gel consistency and the desired pH within a limited range. The selectability is illustrated by the following examples:	100
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Example 1

The following liquids and the following solids were separately mixed and separately packaged:

Liquids	By Weight	110
Oleic acid	22%	
Ammonium hydroxide (29% aq. solution)	7%	
*Wetting agent	40%	
Alcohol	13%	115
Dyes and chelating agents	1%	
Water	17%	
		100%

*The wetting agents used in this composition are nonylphenoxy poly (ethyleneoxy) ethanol, ammonium oleate or polyoxyethylene-4-lauryl ether or a combination of these.

The chelating agent used was N, N-di (2-hydroxyethyl) glycine mono-sodium salt.

<i>Solids</i>	<i>By Weight</i>	
Ammonium persulphate	21%	45
Potassium persulphate	63%	
Sodium metasilicate	15%	
5 Dry wetting agent (sodium lauryl-sulphate)	1%	50
	100%	

For a single application, 4 ounces of 20-volume hydrogen peroxide were mixed with 10 12 grams of solids and the mixture shaken. Two ounces of the liquids were then added to form a creamy paste ready for application to the hair. The composition had a pH of 9.3.

15 *Example 2*

The same mixture was used as in Example 1 except that twice as much of the dry solids, 24 grams, were added to the same quantity, 4 ounces, of hydrogen peroxide and the same quantity, 2 ounces, of liquids. A creamy gel of substantially the same physical characteristics as in Example 1 was obtained and with a pH of 9.5, which produced a lighter and somewhat faster bleach than the composition of Example 1.

20 *Example 3*

The same mixtures as in Example 1 again were employed except for the use of 3 times the solids, or 36 grams. Again, the consistency of the gel was about the same, the pH had not risen significantly, being 9.6, still within the range, but now the mixture bleached substantially lighter and faster.

25 In these examples the sodium metasilicate is present as 15% by weight of the dry solids and the per-salts total 84% so that the ratio of the gel forming silicate to the per-salts is approximately 1 to 6. We have found that this ratio should be kept within 30 the range from 1 to 4 to 1 to 7.

35 In use, we have found that the composition has a creamy gel consistency which is very well adapted for localized application to the scalp portions of the hair strands in

retouching, although, of course, the composition may be used for a total bleach. It affords a fast bleaching action with the paste retaining its moisture consistency and alkalinity until the bleach is finished, when it may readily be shampooed away by working up suds simply by the addition of water. When used locally at the scalp or root portion of the hair, it is of a consistency to facilitate application only to the new hair growth without overlapping previously bleached hair; and the peroxide is held well in the mix without running on the scalp as with prior similar compositions.

50 **WHAT WE CLAIM IS:—**

55 1. A dry powder for admixture with hydrogen peroxide and a liquid ammonium soap to form a hair bleach of gelatinous consistency comprising a persulfate salt of a cation selected from alkali metals and ammonium, and or anhydrous alkali metal silicate, the silicate and persulfate salts being present in a weight ratio range of 1:4 to 1:7 and forming, upon wetting with both of said liquids, a gel in the pH range of from 9.3 to not more than 10.

60 2. A dry powder as claimed in claim 1 comprising approximately three parts by weight of potassium persulfate to one part of ammonium persulfate and an anhydrous alkali metal silicate, the silicate and persulfate salt mixture being present in a weight ratio range of from 1:4 to 1:7 and forming, upon wetting with both of said liquids, a gel in the pH range of from 9.3 to not more than 10.

65 3. A dry powder according to claim 1 for admixture with hydrogen peroxide and a liquid ammonium soap to form a hair bleach of gelatinous consistency substantially as hereinbefore described with reference to the Examples.

70 **MARKS & CLERK,**
Chartered Patent Agents,
Agents for the Applicants.



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RAPPORT DE RECHERCHE PRÉLIMINAIRE

N° d'enregistrement
nationalFA 623613
FR 0208855établi sur la base des dernières revendications
déposées avant le commencement de la recherche**DOCUMENTS CONSIDÉRÉS COMME PERTINENTS**

Catégorie	Citation du document avec indication, en cas de besoin, des parties pertinentes	Revendication(s) concernée(s)	Classement attribué à l'invention par l'INPI
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A	US 5 888 484 A (BALZER WOLFGANG R ET AL) 30 mars 1999 (1999-03-30) * exemple 1 *		
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			DOMAINES TECHNIQUES RECHERCHÉS (IntCL7)
			A61Q A61K
1	Date d'achèvement de la recherche 25 mars 2003	Examinateur Stienon, P	
CATÉGORIE DES DOCUMENTS CITÉS		T : théorie ou principe à la base de l'invention E : document de brevet bénéficiant d'une date antérieure à la date de dépôt et qui n'a été publié qu'à cette date de dépôt ou qu'à une date postérieure. D : cité dans la demande L : cité pour d'autres raisons & : membre de la même famille, document correspondant	
EPO FORM 1503 12.99 (P04C14)			

**ANNEXE AU RAPPORT DE RECHERCHE PRÉLIMINAIRE
RELATIF A LA DEMANDE DE BREVET FRANÇAIS NO. FR 0208855 FA 623613**

La présente annexe indique les membres de la famille de brevets relatifs aux documents brevets cités dans le rapport de recherche préliminaire visé ci-dessus.
 Les dits membres sont contenus au fichier informatique de l'Office européen des brevets à la date du **25-03-2003**.
 Les renseignements fournis sont donnés à titre indicatif et n'engagent pas la responsabilité de l'Office européen des brevets, ni de l'Administration française.

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